

REMARKS

Claims 1-12 are currently pending in the present Application, with claims 13-15 being subject to an Election/Restriction Requirement. The provisional election with traverse of claims 1-12 provided on August 4, 2004 in response to the Examiner's telephone inquiry is hereby affirmed.

IDS Submission: The Information Disclosure Statement submitted on November 5, 2003 is noted to be deficient for failure to provide a copy of a German reference identified in the Form PTO-1449, DE 73 24 829.

The Applicants note that, as stated in the November 5, 2003 IDS, this reference was cited in the International Search Report and was (or should have been) provided to the USPTO by the International Search Authority. The Applicants therefore did not include a duplicate copy of the reference with the IDS. Notwithstanding the foregoing, for the Examiner's convenience the Applicants have attached a copy of the DE 73 24 829 reference.

Because the November 5, 2003 IDS complied with the requirements of 37 C.F.R., the Applicants respectfully request the DE 73 24 829 reference be considered, and the annotations on the Applicants' November 5, 2003 Form PTO-1449 be revised to reflect the Examiner's consideration of this reference.

Title Objection: The Title stands objected to as not clearly indicative of the invention to which the claims are directed. The Applicants have amended the Title to more specifically identify the nature of the thermally-sprayed coating. Withdrawal of the pending objection is respectfully requested.

Section 112 Rejection: Claims 4-6 stand rejected under 35 U.S.C. § 112,

second paragraph, as indefinite for failing to make clear when in the coating process the recited particle fraction limitations apply.

In response to this rejection, the Applicants have amended claim 4 to make clear that the recited limitation applies to the fraction of plastic particles present *during* the spraying process. Thus, claim 4 now recites that “the fraction of plastic particles in the spraying jet increases during spraying to comprise up to 80% by volume of a total volume of particles in the spraying jet.” Claims 5-6 have been amended similarly.

Reconsideration and withdrawal of the pending § 112, second paragraph rejection of claims 4-6 is respectfully requested.

Section 103(a) Rejection: Claims 1-10 and 12 stand rejected under 35 U.S.C. § 103(a) as unpatentable over German patent publication DE 24 01 085 A1 (“DE ‘085”) in view of Japanese patent publication 02-217458 (“JP ‘458”) and German patent publication DE 30 42 921 A1 (“DE ‘921”). The Applicants respectfully reverse this rejection on the grounds that there would have been no suggestion or motivation to combine the cited references, that the references do not teach or suggest all the features of the present invention, and that even if combined, the present invention would not result.

The Present Invention: As recited in claim 1, the present invention is directed to a method of creating a coating of plastic and oxide particles onto cooking utensils in which a desired abrasion resistance is obtained in a production- and cost-effective single-layer application. This coating is achieved by application of a higher concentration of oxide particles in the coating at the

utensil surface, and then obtaining the desired anti-adhesion property at the coating outer surface by increasing the volume fraction of plastic particles applied by the spraying jet as the spraying proceeds from the surface of the utensil to the outer surface of the coating. The inventors thus have developed a novel approach to coating application which simultaneously achieves a superior variable-density coating while the one-step coating process achieves production and cost efficiencies not previously available.

The Cited References: The pending Office Action cites three references as teaching various features of the present invention, and then asserts it would have been obvious to combine these features to obtain the present invention. The Applicants respectfully submit that these reference do not teach all the features for which they are cited, that there would have been no suggestion to combine the references, and that, in any event, the present invention would not result from their combination.

The first reference, DE '085, is cited for thermal spraying of plastics mixed with oxide particles onto a cooking utensils, but is acknowledged to not teach several features of the present invention, including (i) the location of the plastic particle introduction into the thermal spray, (ii) the high efficiency, one-step coating application, and (iii) the variation of plastic particle volume fraction as the spray application progresses. September 16, 2004 Office Action at 5. Given the simple teachings of the DE '085 reference (basically just thermal spraying of a plastic/oxide mixture), this reference itself is not a source of any suggestion or motivation for its combination with other references to obtain the present invention; such motivation, if it exists, therefore must arise elsewhere.

The second reference, JP '458 is cited as teaching the introduction of plastic material into a region of the spraying jet which has less thermal energy than the location in the spray at which ceramic particles are introduced. Office Action at 6. This reference is entirely silent on the mixture of plastic and ceramic particles, other than to refer to one fixed mixing ratio (40 vol. % ceramic). JP '458 Abstract. Thus, there is no suggestion of the present invention's approach to coating mixture variation to be found in this reference.

It is the final cited reference, DE '921, which fails to provide the necessary teaching or motivation to complete the present invention. In fact, the DE '921 reference teaches exactly the *opposite* of the present invention.

In the present invention, the spray initially applied to the target surface consists primarily of high temperature oxide material (*i.e.*, high melting material introduced at a high temperature region of the spray) in order to provide a robust, wear-resistant base for the coating. As this high temperature material is cooling, the coating is built up with increasing fractions of plastic until the surface of the coating has sufficiently plastic to provide the desired high anti-adhesive property. In this manner, a strong, yet highly anti-adhesive coating is formed, while the plastic is protected from excess heating in either the thermal spray jet or once deposited on the coating surface.

In contrast, DE '921 teaches a process for creating exactly the opposite type of surface – a coating with an *outer* surface that is primarily formed of a *high-melting* material. Thus, even if there were a suggestion or motivation to combine the cited references, the present invention's one-step, *high plastic*-content outer surface coating would not result.

Moreover, the DE '921 reference teaches that its high temperature material application process is unsuitable for combination with other references to attempt to obtain the present invention.

The present invention first forms a strong high-melting base on the target substrate. The DE '921 reference teaches the opposite – that its high temperature material *must be kept away from* the underlying object's surface. DE '921 Abstract (noting that the substrate target, a plastic sheet being provided a metal or ceramic coating, must be *protected* from the high temperature material: “[coating produced] using an intermediate layer ... to avoid direct effect of the high temperature [from the metal or ceramics] on the plastics”). Further, the present invention builds upon its strong coating base with increasing plastic content *in such a way to avoid overheating of the plastic material* as the coating is built, *i.e.*, by decreasing the amount of high temperature material and introducing the plastic into the spray downstream of the oxide as the layer builds. The DE '921 teaches a process which effectively *increases* the temperature of the coating as it is applied, as the high temperature material fraction is *increased* as the plastic substrate becomes sufficiently insulated by the previously-deposited intervening coating material.

Thus, DE '921 teaches a coating process which cannot result in the present invention's one step, high anti-adhesive coating. Accordingly, no combination of the DE '085, JP '458, and/or DE '921 references teaches or suggests the present

invention.¹ Reconsideration and withdrawal of the § 103(a) rejections of pending independent claim 1 and its dependent claims 2-12 is respectfully requested.

CONCLUSION

In view of the foregoing amendments and remarks, the Applicants respectfully submit that claims 1-12 are in allowable form. Issuance of a Notice of Allowance for these claims is respectfully requested.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #038724.52851US).

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¹ The Applicants note there is nothing in DE '921 or any of the other references which provides any suggestion, or even a motivation to try, reversing the DE '921 outer-oxide surface-generating process to obtain the present invention, as there is nothing in these references to suggest such a fundamental change to the principles of operation of the DE '921 reference (*i.e.*, complete reversal of the underlying thermal principles on which the DE '921 reference relies).